

**PATENTS**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

|  |   |                                     |
|--|---|-------------------------------------|
| In re Patent Application of:             | ) |                                     |
| <b>BARBEE, Robert Boyd</b>               | ) | Group Art Unit: <b>1714</b>         |
|  | ) |                                     |
|  | ) |                                     |
| Serial No.: <b>Unassigned</b>            | ) | Examiner: <b>WYROZEBSKI LEE, K.</b> |
|  | ) |                                     |
| Filed: <b>October 14, 2003</b>           | ) | Atty. Docket No. <b>USC12.CON1</b>  |
|  | ) | <b>(019039.000150)</b>              |
| For: <b>A POLYMER/CLAY NANOCOMPOSITE</b> | ) |                                     |
| <b>COMPRISING A CLAY MIXTURE AND</b>     | ) |                                     |
| <b>A PROCESS FOR MAKING SAME</b>         | ) |                                     |

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Patent Application, P.O. Box 1450, Alexandria, VA 22313-1450.

Michelle E. Kandcer  
Reg. No. 54,207



Signature

**INFORMATION DISCLOSURE STATEMENT**

October 14, 2003

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Mail Stop Patent Application  
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Sir:

Applicant hereby voluntarily discloses the references listed on the attached Form  
PTO-1449 to the United States Patent and Trademark Office for the above-identified patent  
application.


The submission of these references shall not serve as an indication that a search has been  
conducted on the claimed subject matter, nor shall the submission be deemed an admission that

these references are, or are considered to be, material to the patentability of the above-identified patent application.

This Information Disclosure Statement is being submitted prior to the mailing of a first Office Action on the merits. Therefore, Applicant believes that no fee is due under 37 C.F.R. §1.17. However, if a fee is deemed to be due, the Commissioner is hereby authorized to charge such fee to Deposit Account No. 20-1507.

Respectfully submitted,

TROUTMAN SANDERS LLP

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| Substitute for form 1449A/PTO                            |   |    |    | <b>Complete If Known</b> |                     |
| <b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b> |   |    |    | Application Number       | Unassigned          |
|  |   |    |    | Filing Date              | Herewith            |
|  |   |    |    | First Named Inventor     | BARBEE, Robert Boyd |
|  |   |    |    | Group Art Unit           | 1714                |
| (use as many sheets as necessary)                        |   |    |    | Examiner Name            | Wyrozewski Lee      |
| Sheet  | 1 | of | 10 | Attorney Docket Number   | USC12.CON1          |

| U.S. PATENT DOCUMENTS |                          |                      |                                      |  |  |  |
|-----------------------|--------------------------|----------------------|--------------------------------------|--|--|--|
| Examiner<br>Initials* | Cite<br>No. <sup>1</sup> | U.S. Patent Document |                                      | Name of Patentee or Applicant<br>of Cited Document | Date of Publication of<br>Cited Document<br>MM-DD-YYYY | Pages, Columns, Lines,<br>Where Relevant<br>Passages or Relevant<br>Figures Appear |
|                       |                          | Number               | Kind Code <sup>2</sup><br>(if known) |  |  |  |
|                       | A01                      | 6,447,860            |                                      | Mueller et al.                                     | 09-10-2002   |  |
|                       | A02                      | 6,417,262            |                                      | Turner et al.                                      | 07-09-2002   |  |
|                       | A03                      | 6,407,155            |                                      | Quian et al.                                       | 06-18-2002   |  |
|                       | A04                      | 6,403,231            |                                      | Mueller et al.                                     | 06-11-2002   |  |
|                       | A05                      | 6,391,449            |                                      | Lan et al.   | 05-21-2002   |  |
|                       | A06                      | 6,384,121            |                                      | Barbee et al.                                      | 05-07-2002   |  |
|                       | A07                      | 6,376,591            |                                      | Lan et al.   | 04-23-2002   |  |
|                       | A08                      | 6,350,805            |                                      | Korbee et al.                                      | 02-26-2002   |  |
|                       | A09                      | 6,254,803            |                                      | Matthews et al.                                    | 07-03-2001   |  |
|                       | A10                      | 6,232,388            |                                      | Lan, et al.  | 05-15-2001   |  |
|                       | A11                      | 6,156,835            |                                      | Anderson et al.                                    | 12-05-2000   |  |
|                       | A12                      | 6,162,857            |                                      | Trexler et al.                                     | 12-19-2000   |  |
|                       | A13                      | 6,120,860            |                                      | Bowen et al.                                       | 09-19-2000   |  |
|                       | A14                      | 6,117,541            |                                      | Frisk  | 09-12-2000   |  |
|                       | A15                      | 6,084,019            |                                      | Mataybas   | 07-04-2000   |  |
|                       | A16                      | 6,071,988            |                                      | Barbee et al.                                      | 06-06-2000   |  |
|                       | A17                      | 6,057,396            |                                      | Lan et al.   | 05-02-2000   |  |
|                       | A18                      | 6,060,549            |                                      | Li et al.  | 05-09-2000   |  |
|                       | A19                      | 6,050,509            |                                      | Clarey et al.                                      | 04-18-2000   |  |
|                       | A20                      | 6,036,765            |                                      | Farrow et al.                                      | 03-14-2000   |  |

| FOREIGN PATENT DOCUMENTS          |                          |                         |                     |   |  |   |  |                |
|-----------------------------------|--------------------------|-------------------------|---------------------|---|--|---|--|----------------|
| Examiner<br>Initials <sup>1</sup> | Cite<br>No. <sup>1</sup> | Foreign Patent Document |                     |   | Name of Patentee or<br>Applicant of Cited Document | Date of<br>Publication of<br>Cited Document<br>MM-DD-YYYY | Pages, Columns, Lines,<br>Where Relevant<br>Passages or Relevant<br>Figures Appear | T <sup>6</sup> |
|                                   |                          | Office <sup>3</sup>     | Number <sup>4</sup> | Kind<br>Code <sup>5</sup> (if<br>known) |  |   |  |                |
|                                   | A21                      | EP                      | 0940430             |   |  | 09-08-1999  |  |                |
|                                   | A22                      | WO                      | 99/38915            |   |  | 08-05-1999  |  |                |
|                                   | A23                      | WO                      | 99/15432            |   |  | 04-01-1999  |  |                |
|                                   | A24                      | WO                      | 98/53000            |   |  | 11-26-1998  |  |                |
|                                   | A25                      | WO                      | 98/29499            |   |  | 07/09/1998  |  |                |
|                                   | A26                      | JP                      | 10168305            |   |  | 06-23-1998  |  |                |
|                                   | A27                      | EP                      | 0846723             |   |  | 06-10-1998  |  |                |
|                                   | A28                      | JP                      | 10133013            |   |  | 05-22-1998  |  |                |
|                                   | A29                      | JP                      | 10077427            |   |  | 03-24-1998  |  |                |
|                                   | A30                      | EP                      | 0822163             |   | Serrano et al.                                     | 02-04-1998  |  |                |
| Examiner<br>Signature             |                          |                         |                     |   |  | Date<br>Considered  |  |                |

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup>Unique citation designation number. <sup>2</sup>See attached Kinds of U.S. Patent Documents. <sup>3</sup>Enter Office that issued the document, by the twoletter code (WIPO Standard ST.3). <sup>4</sup>For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup>Applicant is to place a check mark here if English language Translation is attached.

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|  |                |    |    | Filing Date              | Herewith            |
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|  |                |    |    | Group Art Unit           | 1714                |
| Examiner Name  | Wyrozewski Lee |    |    |                          |                     |
| Attorney Docket Number   | USC12.CON1     |    |    |                          |                     |
| Sheet  | 2              | of | 10 |                          |                     |

| U.S. PATENT DOCUMENTS |                       |                      |                                   |   |  |   |
|-----------------------|-----------------------|----------------------|-----------------------------------|---|--|---|
| Examiner Initials*    | Cite No. <sup>1</sup> | U.S. Patent Document |                                   | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document MM-DD-YYYY | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear |
|                       |                       | Number               | Kind Code <sup>2</sup> (if known) |   |  |   |
|                       | B1                    | 6,034,163            |                                   | Barbee et al.                                   | 03-07-2000                                       |   |
|                       | B2                    | 6,017,632            |                                   | Pinnavaia et al.                                | 01-25-2000                                       |   |
|                       | B3                    | 5,993,769            |                                   | Pinnavaia et al.                                | 11-30-1999                                       |   |
|                       | B4                    | 5,972,448            |                                   | Frisk et al.                                    | 10-26-1999                                       |   |
|                       | B5                    | 5,952,093            |                                   | Nichols et al.                                  | 09-14-1999                                       |   |
|                       | B6                    | 5,942,320            |                                   | Miyake et al.                                   | 08-24-1999                                       |   |
|                       | B7                    | 5,916,685            |                                   | Frisk et al.                                    | 06-29-1999                                       |   |
|                       | B8                    | 5,882,751            |                                   | Occhiello et al.                                | 03-16-1999                                       |   |
|                       | B09                   | 5,876,812            |                                   | Frisk et al.                                    | 03-02-1999                                       |   |
|                       | B10                   | 5,849,830            |                                   | Tipursky et al.                                 | 12-15-1998                                       |   |
|                       | B11                   | 5,830,544            |                                   | Kerscher et al.                                 | 11-03-1998                                       |   |
|                       | B12                   | 5,807,630            |                                   | Christie et al.                                 | 09-15-1998                                       |   |
|                       | B13                   | 5,780,376            |                                   | Gonzales et al.                                 | 07-14-1998                                       |   |
|                       | B14                   | 5,747,560            |                                   | Christiani et al.                               | 05-05-1998                                       |   |
|                       | B15                   | 5,728,764            |                                   | Bauer et al.                                    | 03-17-1998                                       |   |
|                       | B16                   | 5,665,454            |                                   | Hosoi et al.                                    | 09-09-1997                                       |   |
|                       | B17                   | 5,660,761            |                                   | Katsumoto et al.                                | 08-26-1997                                       |   |
|                       | B18                   | 5,648,159            |                                   | Sato  | 07-15-1997                                       |   |
|                       | B19                   | 5,620,774            |                                   | Etchu et al.                                    | 04-15-1997                                       |   |
|                       | B20                   | 5,612,138            |                                   | Kurts et al.                                    | 03-18-1997                                       |   |

| FOREIGN PATENT DOCUMENTS |                          |                         |                     |   |  |   |  |                |
|--------------------------|--------------------------|-------------------------|---------------------|---|--|---|--|----------------|
| Examiner<br>Initials     | Cite<br>No. <sup>1</sup> | Foreign Patent Document |                     |   | Name of Patentee or<br>Applicant of Cited Document | Date of<br>Publication of<br>Cited Document<br>MM-DD-YYYY | Pages, Columns, Lines,<br>Where Relevant<br>Passages or Relevant<br>Figures Appear | T <sup>6</sup> |
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|                          | B21                      | WO                      | 98/01346            |   |  | 01-15-1998  |  |                |
|                          | B22                      | JP                      | 10001608            |   |  | 01-06-1998  |  |                |
|                          | B23                      | WO                      | 97/02323            |   |  | 01-23-1997  |  |                |
|                          | B24                      | WO                      | 97/44384            |   |  | 11-27-1997  |  |                |
|                          | B25                      | WO                      | 97/31973            |   |  | 09-04-1997  |  |                |
|                          | B26                      | WO                      | 97/31057            |   |  | 08-28-1997  |  |                |
|                          | B27                      | WO                      | 97/30950            |   |  | 08-28-1997  |  |                |
|                          | B28                      | JP                      | 9217012             |   |  | 08-19-1997  |  |                |
|                          | B29                      | JP                      | 9176461             |   |  | 07-08-1997  |  |                |
|                          | B30                      | EP                      | 780340              |   |  | 06-25-1997  |  |                |

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|   |                |    |    | Application Number       | Unassigned          |
|   |                |    |    | Filing Date              | Herewith            |
|   |                |    |    | First Named Inventor     | BARBEE, Robert Boyd |
|   |                |    |    | Group Art Unit           | 1714                |
| Examiner Name   | Wyrozowski Lee |    |    |                          |                     |
| Attorney Docket Number  | USC12.CON1     |    |    |                          |                     |
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| U.S. PATENT DOCUMENTS             |                          |                      |                                      |  |  |  |
|-----------------------------------|--------------------------|----------------------|--------------------------------------|--|--|--|
| Examiner<br>Initials <sup>1</sup> | Cite<br>No. <sup>1</sup> | U.S. Patent Document |                                      | Name of Patentee or Applicant<br>of Cited Document | Date of Publication of<br>Cited Document<br>MM-DD-YYYY | Pages, Columns, Lines,<br>Where Relevant<br>Passages or Relevant<br>Figures Appear |
|                                   |                          | Number               | Kind Code <sup>2</sup><br>(if known) |  |  |  |
|                                   | C01                      | 5,578,672            |                                      | Beall et al.                                       | 11-26-1996   |  |
|                                   | C02                      | 5,552,469            |                                      | Beall et al.                                       | 09-03-1996   |  |
|                                   | C03                      | 5,530,052            |                                      | Takekoshi et al.                                   | 06-25-1996   |  |
|                                   | C04                      | 5,523,045            |                                      | Kudert et al.                                      | 06-04-1996   |  |
|                                   | C05                      | 5,514,734            |                                      | Maxfield et al.                                    | 05-07-1996   |  |
|                                   | C06                      | 5,454,865            |                                      | Ginn et al.  | 10-03-1995   |  |
|                                   | C07                      | 5,434,000            |                                      | Konagaya et al.                                    | 07-18-1995   |  |
|                                   | C08                      | 5,429,999            |                                      | Nae et al.   | 07-04-1995   |  |
|                                   | C09                      | 5,414,042            |                                      | Yasue et al.                                       | 05-09-1995   |  |
|                                   | C10                      | 5,385,776            |                                      | Maxfield et al.                                    | 01-31-1995   |  |
|                                   | C11                      | 5,382,650            |                                      | Kasowski et al.                                    | 01-17-1995   |  |
|                                   | C12                      | 5,374,306            |                                      | Schlegel et al.                                    | 12-20-1994   |  |
|                                   | C13                      | 5,371,051            |                                      | Pope et al.  | 12-06-1994   |  |
|                                   | C14                      | 5,340,884            |                                      | Mills et al.                                       | 08-23-1994   |  |
|                                   | C15                      | 5,336,647            |                                      | Nae et al.   | 08-09-1994   |  |
|                                   | C16                      | 5,334,241            |                                      | Jordan   | 08-02-1994   |  |
|                                   | C17                      | 5,314,987            |                                      | Kim et al.   | 05-24-1994   |  |
|                                   | C18                      | 5,273,706            |                                      | Laughner   | 12-28-1993   |  |
|                                   | C19                      | 5,248,720            |                                      | Deguchi et al.                                     | 09-28-1993   |  |
|                                   | C20                      | 5,221,507            |                                      | Beck et al.  | 06-22-1993   |  |

| FOREIGN PATENT DOCUMENTS          |                          |                         |                     |   |  |   |  |                |
|-----------------------------------|--------------------------|-------------------------|---------------------|---|--|---|--|----------------|
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|                                   | C21                      | WO                      | 97/17398            |   |  | 05-15-1997  |  |                |
|                                   | C22                      | EP                      | 0761739             |   |  | 03-12-1997  |  |                |
|                                   | C23                      | JP                      | 09048908            |   |  | 02-18-1997  |  |                |
|                                   | C24                      | EP                      | 747451              |   |  | 12-11-1996  |  |                |
|                                   | C25                      | EP                      | 681990              |   |  | 11-15-1996  |  |                |
|                                   | C26                      | WO                      | 96/25458            |   |  | 08-22-1996  |  |                |
|                                   | C27                      | WO                      | 96/08526            |   |  | 03-21-1996  |  |                |
|                                   | C28                      | EP                      | 0691376             |   |  | 01-10-1996  |  |                |
|                                   | C29                      | EP                      | 0691212             |   |  | 01-10-1996  |  |                |
|                                   | C30                      | WO                      | 95/14733            |   |  | 06-01-1995  |  |                |

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| U.S. PATENT DOCUMENTS |                          |                      |                                      |  |  |  |
|-----------------------|--------------------------|----------------------|--------------------------------------|--|--|--|
| Examiner<br>Initials* | Cite<br>No. <sup>1</sup> | U.S. Patent Document |                                      | Name of Patentee or Applicant<br>of Cited Document | Date of Publication of<br>Cited Document<br>MM-DD-YYYY | Pages, Columns, Lines,<br>Where Relevant<br>Passages or Relevant<br>Figures Appear |
|                       |                          | Number               | Kind Code <sup>2</sup><br>(if known) |  |  |  |
|                       | D01                      | 5,206,284            |                                      | Fukui et al.                                       | 04-27-1993   |  |
|                       | D02                      | 5,164,460            |                                      | Yano et al.  | 11-17-1992   |  |
|                       | D03                      | 5,153,061            |                                      | Cavagna et al.                                     | 10-06-1992   |  |
|                       | D04                      | 5,153,062            |                                      | Grolig et al.                                      | 10-06-1992   |  |
|                       | D05                      | 5,149,485            |                                      | Belcher  | 09-22-1992   |  |
|                       | D06                      | 5,110,501            |                                      | Knudson Jr. et al.                                 | 05-05-1992   |  |
|                       | D07                      | 5,102,948            |                                      | Deguchi et al.                                     | 04-07-1992   |  |
|                       | D08                      | 5,091,462            |                                      | Fukui et al.                                       | 02-25-1992   |  |
|                       | D09                      | 5,037,285            |                                      | Kudert et al.                                      | 08-06-1991   |  |
|                       | D10                      | 5,034,252            |                                      | Nilsson et al.                                     | 07-23-1991   |  |
|                       | D11                      | 5,028,462            |                                      | Matlack et al.                                     | 07-02-1991   |  |
|                       | D12                      | 5,011,534            |                                      | Berube   | 04-30-91   |  |
|                       | D13                      | 4,994,313            |                                      | Shimizu et al.                                     | 02-19-1991   |  |
|                       | D14                      | 4,983,719            |                                      | Fox et al.   | 01-08-1991   |  |
|                       | D15                      | 4,983,432            |                                      | Bissot   | 01-08-1991   |  |
|                       | D16                      | 4,957,980            |                                      | Kobayashi et al.                                   | 09-18-1990   |  |
|                       | D17                      | 4,946,365            |                                      | Kudert et al.                                      | 08-07-1990   |  |
|                       | D18                      | 4,894,411            |                                      | Okada et al.                                       | 01-16-1990   |  |
|                       | D19                      | 4,889,885            |                                      | Usuki et al.                                       | 12-26-1989   |  |
|                       | D20                      | 4,810,734            |                                      | Kawasumi et al.                                    | 03-07-1989   |  |

| FOREIGN PATENT DOCUMENTS          |                          |                         |                     |   |  |   |  |                |
|-----------------------------------|--------------------------|-------------------------|---------------------|---|--|---|--|----------------|
| Examiner<br>Initials <sup>*</sup> | Cite<br>No. <sup>1</sup> | Foreign Patent Document |                     |   | Name of Patentee or<br>Applicant of Cited Document | Date of<br>Publication of<br>Cited Document<br>MM-DD-YYYY | Pages, Columns, Lines,<br>Where Relevant<br>Passages or Relevant<br>Figures Appear | T <sup>6</sup> |
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|                                   | D21                      | EP                      | 650994              |   |  | 05-03-1995  |  |                |
|                                   | D22                      | WO                      | 95/06090            |   |  | 03-02-1995  |  |                |
|                                   | D23                      | JP                      | 7026123             |   |  | 01-27-1995  |  |                |
|                                   | D24                      | WO                      | 94/29378            |   |  | 12-22-1994  |  |                |
|                                   | D25                      | WO                      | 94/11430            |   |  | 05-26-1994  |  |                |
|                                   | D26                      | EP                      | 0590263             |   |  | 04-06-1994  |  |                |
|                                   | D27                      | WO                      | 93/14922            |   |  | 08-05-1993  |  |                |
|                                   | D28                      | WO                      | 93/11190            |   |  | 06-10-1993  |  |                |
|                                   | D29                      | EP                      | 542266              |   |  | 05-19-1993  |  |                |
|                                   | D30                      | WO                      | 93/04125            |   |  | 03-04-1993  |  |                |

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|  |   |    |    | First Named Inventor     | BARBEE, Robert Boyd |
|  |   |    |    | Group Art Unit           | 1714                |
| (use as many sheets as necessary)                        |   |    |    | Examiner Name            | Wyrozewski Lee      |
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| U.S. PATENT DOCUMENTS |                          |                      |                                      |  |  |  |
|-----------------------|--------------------------|----------------------|--------------------------------------|--|--|--|
| Examiner<br>Initials  | Cite<br>No. <sup>1</sup> | U.S. Patent Document |                                      | Name of Patentee or Applicant<br>of Cited Document | Date of Publication of<br>Cited Document<br>MM-DD-YYYY | Pages, Columns, Lines,<br>Where Relevant<br>Passages or Relevant<br>Figures Appear |
|                       |                          | Number               | Kind Code <sup>2</sup><br>(if known) |  |  |  |
|                       | E01                      | 4,777,206            |                                      | Rittler  | 10-11-1988   |  |
|                       | E02                      | 4,769,078            |                                      | Tso  | 09-06-1988   |  |
|                       | E03                      | 4,742,098            |                                      | Finlayson et al.                                   | 05-03-1988   |  |
|                       | E04                      | 4,739,007            |                                      | Okada et al.                                       | 04-19-1988   |  |
|                       | E05                      | 4,725,466            |                                      | Crass et al.                                       | 02-16-1988   |  |
|                       | E06                      | 4,720,420            |                                      | Crass et al.                                       | 01-19-1988   |  |
|                       | E07                      | 4,680,208            |                                      | Aoki et al.  | 07-14-1987   |  |
|                       | E08                      | 4,677,158            |                                      | Tso et al.   | 06-30-1987   |  |
|                       | E09                      | 4,676,929            |                                      | Rittler  | 06-30-1987   |  |
|                       | E10                      | 4,646,925            |                                      | Nohara   | 03-03-1987   |  |
|                       | E11                      | 4,600,409            |                                      | Campbell   | 07-15-1986   |  |
|                       | E12                      | 4,595,715            |                                      | Kuze et al.  | 06-17-1986   |  |
|                       | E13                      | 4,546,126            |                                      | Breitenfellner et al.                              | 10-08-1985   |  |
|                       | E14                      | 4,536,425            |                                      | Hekal  | 08-20-1985   |  |
|                       | E15                      | 4,517,112            |                                      | Mardis et al.                                      | 05-14-1985   |  |
|                       | E16                      | 4,482,695            |                                      | Barbee et al.                                      | 11-13-1984   |  |
|                       | E17                      | 4,472,538            |                                      | Kamigaito et al.                                   | 09-18-1984   |  |
|                       | E18                      | 4,450,095            |                                      | Finlayson  | 05-22-1984   |  |
|                       | E19                      | 4,442,163            |                                      | Kuhner et al.                                      | 04-10-1984   |  |
|                       | E20                      | 4,434,076            |                                      | Mardis et al.                                      | 02-28-1984   |  |

| FOREIGN PATENT DOCUMENTS          |                          |                         |                     |   |  |   |  |                |
|-----------------------------------|--------------------------|-------------------------|---------------------|---|--|---|--|----------------|
| Examiner<br>Initials <sup>2</sup> | Cite<br>No. <sup>1</sup> | Foreign Patent Document |                     |   | Name of Patentee or<br>Applicant of Cited Document | Date of<br>Publication of<br>Cited Document<br>MM-DD-YYYY | Pages, Columns, Lines,<br>Where Relevant<br>Passages or Relevant<br>Figures Appear | T <sup>6</sup> |
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|                                   | E21                      | WO                      | 93/04117            |   |  | 03-04-1993  |  |                |
|                                   | E22                      | EP                      | 459472              |   |  | 12-04-1991  |  |                |
|                                   | E23                      | EP                      | 398551              |   |  | 11-22-1990  |  |                |
|                                   | E24                      | EP                      | 295336              |   |  | 12-21-1988  |  |                |
|                                   | E25                      | DE                      | 3808623             |   |  | 10-06-1988  |  |                |
|                                   | E26                      | DE                      | 3806548             |   |  | 09-15-1988  |  |                |
|                                   | E27                      | EP                      | 278403              |   |  | 08-17-1988  |  |                |
|                                   | E28                      | EP                      | 261430              |   |  | 03-30-1988  |  |                |
|                                   | E29                      | JP                      | 62073943            |   |  | 04-04-1987  |  |                |
|                                   | E30                      | EP                      | 0202532             |   |  | 11-26-1986  |  |                |

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|   |                |    |    | First Named Inventor     | BARBEE, Robert Boyd |
|   |                |    |    | Group Art Unit           | 1714                |
| Examiner Name   | Wyrozewski Lee |    |    |                          |                     |
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| U.S. PATENT DOCUMENTS          |                       |                      |                                   |   |  |   |
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|                                |                       | Number               | Kind Code <sup>2</sup> (if known) |   |  |   |
|                                | F01                   | 4,429,079            |                                   | Shibata et al.                                  | 01-31-1984                                       |   |
|                                | F02                   | 4,398,642            |                                   | Okudaria et al.                                 | 08-16-1983                                       |   |
|                                | F03                   | 4,393,007            |                                   | Priester et al.                                 | 07-12-1983                                       |   |
|                                | F04                   | 4,381,948            |                                   | McConnell                                       | 05-03-1983                                       |   |
|                                | F05                   | 4,239,826            |                                   | Knott, II et al.                                | 12-16-1980                                       |   |
|                                | F06                   | 4,219,527            |                                   | Edelman et al.                                  | 08-26-1980                                       |   |
|                                | F07                   | 4,163,002            |                                   | Pohl et al.                                     | 07-31-1979                                       |   |
|                                | F08                   | 4,161,578            |                                   | Herron  | 07-17-1979                                       |   |
|                                | F09                   | 4,133,802            |                                   | Hachiboshi et al.                               | 01-09-1979                                       |   |
|                                | F10                   | 4,071,503            |                                   | Thomas et al.                                   | 01-31-1978                                       |   |
|                                | F11                   | 4,064,112            |                                   | Rothe et al.                                    | 12-20-1977                                       |   |
|                                | F12                   | 4,018,746            |                                   | Brinkmann et al.                                | 04-19-1977                                       |   |
|                                | F13                   | 3,946,089            |                                   | Furukawa et al.                                 | 03-23-1976                                       |   |
|                                | F14                   | 3,876,552            |                                   | Moynihan  | 04-08-1975                                       |   |
|                                | F15                   | 3,843,479            |                                   | Matsunami et al.                                | 10-22-1974                                       |   |
|                                | F16                   | 3,823,169            |                                   | Staub   | 07-09-1974                                       |   |
|                                | F17                   | 3,879,283            |                                   | Mercade   | 04-22-1975                                       |   |
|                                | F18                   | 3,792,969            |                                   | Gertisser                                       | 02-19-1974                                       |   |
|                                | F19                   | 3,700,398            |                                   | Cole, Jr.                                       | 10-24-1972                                       |   |
|                                | F20                   | 3,646,072            |                                   | Shaw  | 02-29-1972                                       |   |

| FOREIGN PATENT DOCUMENTS       |                       |                         |                     |                                   |   |  |   |                |
|--------------------------------|-----------------------|-------------------------|---------------------|-----------------------------------|---|--|---|----------------|
| Examiner Initials <sup>*</sup> | Cite No. <sup>1</sup> | Foreign Patent Document |                     |                                   | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document MM-DD-YYYY | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear | T <sup>6</sup> |
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|                                | F21                   | EP                      | 186456              |                                   |   | 07-02-1986                                       |   |                |
|                                | F22                   | WO                      | 84/03096            |                                   |   | 08-16-1984                                       |   |                |
|                                | F23                   | GB                      | 2123014             |                                   |   | 01-25-1984                                       |   |                |
|                                | F24                   | JP                      | 76029697            |                                   |   | 03-09-1976                                       |   |                |
|                                | F25                   | JP                      | 75010196            |                                   |   | 04-18-1975                                       |   |                |
|                                | F26                   | JP                      | 75005751            |                                   |   | 03-06-1975                                       |   |                |
|                                | F27                   | JP                      | 75005735            |                                   |   | 03-06-1975                                       |   |                |
|                                | F28                   | JP                      | 75001156            |                                   |   | 01-16-1975                                       |   |                |
|                                | F29                   | GB                      | 1090036             |                                   |   | 11-08-1967                                       |   |                |
|                                | F30                   | WO                      | 99/41299            |                                   |   | 08-19-1999                                       |   |                |

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|  |   |    |    | Filing Date              | Herewith            |
|  |   |    |    | First Named Inventor     | BARBEE, Robert Boyd |
|  |   |    |    | Group Art Unit           | 1714                |
|  |   |    |    | Examiner Name            | Wyrozewski Lee      |
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| U.S. PATENT DOCUMENTS |                          |                      |                                      |  |  |  |
|-----------------------|--------------------------|----------------------|--------------------------------------|--|--|--|
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|                       |                          | Number               | Kind Code <sup>2</sup><br>(if known) |  |  |  |
|                       | G01                      | 3,627,625            |                                      | Jarrett  | 12-14-1971   |  |
|                       | G02                      | 3,544,523            |                                      | Maxion   | 12-01-1970   |  |
|                       | G03                      | 3,514,498            |                                      | Okazaki et al.                                     | 05-26-1970   |  |
|                       | G04                      | 3,499,916            |                                      | Berthold   | 03-10-1970   |  |
|                       | G05                      | 3,391,164            |                                      | Straley et al.                                     | 07-02-1968   |  |
|                       | G06                      | 3,281,434            |                                      | Turetzky et al.                                    | 10-25-1966   |  |
|                       | G07                      | 3,232,934            |                                      | Hoare  | 02-01-1966   |  |
|                       | G08                      | 3,125,586            |                                      | Katz et al.  | 03-17-1964   |  |
|                       | G09                      | 3,076,821            |                                      | Hoare  | 02-05-1963   |  |
|                       | G10                      | 2,957,010            |                                      | Straley et al.                                     | 10-18-1960   |  |
|                       | G11                      | 2,938,914            |                                      | Joyce  | 05-31-1960   |  |
|                       | G12                      | 2,924,609            |                                      | Joyce  | 02-09-1960   |  |
|                       | G13                      | 2,737,517            |                                      | Boyd   | 03-06-1956   |  |
|                       | G14                      | 3,849,406            |                                      | Basel et al.                                       | 11-19-1974   |  |
|                       | G15                      | 2,531,427            |                                      | Hauser   | 11-28-1950   |  |
|                       | G16                      | 2,966,506            |                                      | Jordan   | 12-27-1960   |  |
|                       | G17                      | 4,081,496            |                                      | Finlayson  | 03-28-1978   |  |
|                       | G18                      | 4,105,578            |                                      | Finlayson  | 08-08-1978   |  |
|                       | G19                      | 4,116,866            |                                      | Finlayson  | 09-26-1978   |  |
|                       | G20                      | 4,208,218            |                                      | Finlayson  | 06-17-1980   |  |

| FOREIGN PATENT DOCUMENTS          |                          |                         |                     |   |  |   |  |                |
|-----------------------------------|--------------------------|-------------------------|---------------------|---|--|---|--|----------------|
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|                                   | G21                      | WO                      | 0034393             |   |  | 06-15-2000  |  |                |
|                                   | G22                      | WO                      | 0034378             |   |  | 06-15-2000  |  |                |
|                                   | G23                      | EP                      | 090787              |   |  | 04-21-1999  |  |                |
|                                   | G24                      | EP                      | 0822163             |   |  | 02-04-1998  |  |                |
|                                   | G25                      | EP                      | 0899301             |   |  | 03-03-1999  |  |                |
|                                   | G26                      | WO                      | 93/04118            |   |  | 03-04-1993  |  |                |
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|   | 11       | LEBARON et al., "Polymer-Layered Silicate Nanocomposites: an Overview," <i>App. Clay Sci.</i> , 15, 11-29 (1999)   |                |
|   | 12       | KE et al., "Crystallization, Properties, and Crystal Nanoscale Morphology of PET-Clay Nanocomposites," <i>J. Appl. Polym. Sci.</i> , 71, 1139-1146 (1999)  |                |
|   | 13       | GIANNELIS, "Polymer Layered Silicate Nanocomposites," <i>Advanced Materials</i> , 8, 29-35 (1996)  |                |
|   | 14       | ORIAKHI et al., "Incorporation of poly(acrylic acid), poly(vinylsulfonate) and poly(styrenesulfonate) within layered double hydroxides," <i>J. Mater. Chem.</i> , 6, 103-107 (1996)  |                |
|   | 15       | MESSERSMITH et al., "Synthesis and Barrier Properties of Poly(t-Caprolactone)-Layered Silicate Nanocomposites," <i>J. of Polym. Sci.</i> , 33, 1047-1057 (1995)  |                |
|   | 16       | SUGAHARA et al., "Clay-Organic Nano-Composite; Preparation of a Kaolinite - Poly(vinylpyrrolidone) Intercalation Compound," <i>J. Ceramic Society of Japan</i> , 100, 413-416 (1992).  |                |
|   | 17       | YANO et al., "Synthesis and properties of polyimide-clay hybrid," <i>ACS, Polymer Preprints</i> , 32, 65-66 (1991)   |                |
|   | 18       | FUKUSHIMA et al., "Swelling Behavior of Montmorillonite by Poly-6- Amide," <i>Clay Minerals</i> , 23, 27-34 (1988)   |                |
|   | 19       | VERBICKY, <i>Encyclopedia of Polymer Science and Engineering</i> , 2 <sup>nd</sup> Edition, 12, 364-383 (1988)   |                |
|   | 110      | FUKUSHIMA et al., "Synthesis of an Intercalated Compound of Montmorillonite and 6-Polyamide," <i>J. Inclusion Phenomana</i> , 5, 473-482 (1987)  |                |
|   | 111      | OKADA et al., "Synthesis and Characterization of a Nylon 6-Clay Hybrid," <i>ACS, Polymer Preprints</i> , 28, 447-448 (1987)  |                |

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| Examiner Signature |  | Date Considered |  |
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Sheet 10 of 10

## Complete If Known

|                        |                     |
|------------------------|---------------------|
| Application Number     | Unassigned          |
| Filing Date            | Herewith            |
| First Named Inventor   | BARBEE, Robert Boyd |
| Group Art Unit         | 1714                |
| Examiner Name          | Wyrozowski Lee      |
| Attorney Docket Number | USC12.CON1          |

## OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

| Examiner<br>Initials <sup>1</sup> | Cite No.<br><sup>1</sup> | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or county where published. | T <sup>2</sup> |
|-----------------------------------|--------------------------|--|----------------|
|                                   | J1                       | FAHN ET AL., "Reaction Products or Organic Dye Molecules with Acid-Treated Montmorillonite," <i>Clay Minerals</i> , 18, 447-458 (1983)   |                |
|                                   | J2                       | GREENLAND, "Adsorption of Polyvinyl Alcohols by Montmorillonite," <i>J. Colloid Sci.</i> , 18, 647-664 (1963)  |                |
|                                   | J3                       | T. J. PINNAVAIA and TIE LAN, "Clay-Reinforced Epoxy Nanocomposites," <i>Chem. Mater.</i> , 6, 2216 (1994) <sup>r</sup>   |                |
|                                   | J4                       | Y. KUROKAWA, H. YASUDA, A. OYA, "Preparation of a Nanocomposite of Polypropylene and Smectite," <i>Mater. Sci. Letters</i> , 15, 1481 (1996)   |                |
|                                   | J5                       | M. KAWASUMI, N. HASEGAWA, M. KATO, A. USUKI, and A. OKADA, "Preparation and Mechanical Properties of Polypropylene-Clay Hybrids," <i>Macromolecules</i> , 30, 6333 (1997)  |                |
|                                   | J6                       | A. USUKI, M. KATO, A. OKADA, T. KURAUCHI, "Synthesis of Propylene-Clay Hybrid," <i>J. App. Polym. Sci.</i> , 63, 137 (1997)  |                |
|                                   | J7                       | C.O. SRIAKHI et al. <i>J. Mater. Chem.</i> , 6, 103 (1996).  |                |
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|                                   |                          |  |                |

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